Harney Basin LiDAR Project

Background/Need: LiDAR has been identified by the Malheur Lake Work Group as critical tool for planning, management, and restoration across the Harney Basin. In particular, this proposal focuses on three areas of interest; Donner und Blitzen Watershed, Malheur Lake, and the Silvies floodplain. Acquiring LiDAR to map terrain and vegetation characteristics of the floodplain, lakes, wetland, rangelands, and riparian zones will greatly benefit scientific studies and the development of resource management alternatives in the Harney Basin. Our need is especially critical for the remote and vast expanses exemplified by the Basin, where limited water, fragmented fish populations, multiple threats to aquatic health (invasive carp), and competing land uses pose major challenges for Federal, State, County, and private organizations.

Objectives for LiDAR:

- Mapping of Refuge infrastructure and water delivery systems to identify and understand the impacts of barriers and connectivity on distribution and abundance of a sensitive species, and river/wetland/meadow relationships,
- Mapping of Malheur Lake topography for Carp control and other wildlife suitability,
- Mapping vegetation and habitats such as riparian vegetation structure and spatial distribution to inform planning for river restoration and management of current irrigation regimes that benefit species at risk such as native Redband trout (USGS-Partner Project),
- Modeling the effects of climate change and water quality (temperature) and other impairments through terrain and structure derived values such as solar radiation (aspect), riparian zone characteristics, and recently revised hydrologic landscape regions adapted for the state of Oregon (USGS-Partner Project),
- Modeling and mapping flood irrigation for migratory bird habitat on the Silvies flood plain (The Harney Basin Wetlands Initiative-Partner Project),
- Detection and mapping of early juniper invasion, identification of low sage, characterization of habitat suitability for sage-grouse (BLM-Partner Project), and
- Address the relevance of remote-sensed characteristics of lake, floodplain, and riparian zones for application of broad-scale monitoring of landscapes.

Outcome: Acquisition of LiDAR will benefit many partners in the Harney Basin. This data will enhance many ongoing research studies and provide a strong baseline dataset to guide management in the basin.

Deliverables:

1. May 2015 – data acquisition completed
2. May 2016 – preliminary modeling to support carp control in the basin completed

Multiple partners will be contributing to this project therefore partial funding is welcome.

Total Funding required: $440,000- 550,000

Malheur Lake:	219,139 acres	- $214,680
Donner and Blitzen:	123,253 acres	- $119,647
Silvies floodplain:	122,645 acres	- $111,114

Optional:
Adding 3-inch pixel, 4-band orthoimagery would add 15%

Funding already secured: $0

Additional funding needed: $550,000

Duration of project: May 2015 – May 2016

Contact information of researchers to conduct study: Linda Beck Malheur NWR, linda_beck@fws.gov, 541-493-4242